
A Second Species of *Smithatris* (Zingiberaceae) from Myanmar

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ABSTRACT. *Smithatris myanmarensis*, the second species of a previously monospecific genus, is described from Myanmar. This new species differs from its congener in Thailand by the overall smaller stature, elliptic leaf lamina with long petioles, dimorphic inflorescence bracts, corolla lobes of similar size and shape, the pouch formed by the labellum and lateral staminodes below the anther, and the shallowly lobed labellum.

Key words: Myanmar, *Smithatris*, Southeast Asia, Thailand, Zingiberaceae.

Members of the Zingiberaceae are commonly used as medicinals, spices, foods, and ornamentals in local and regional cultures throughout Southeast Asia. Our understanding of their diversity and taxonomy has entered a new phase during the last decade with the description of many new taxa, including new genera (e.g., Newman, 1995; Mood & Larsen, 1997; Larsen & Mood, 1998; Sakai & Nagamasu, 2000). The recently described genus *Smithatris* (Kress & Larsen, 2001) with a single species, *S. supraneana* W. J. Kress & K. Larsen (as "*S. supraneanae*"), is commonly used in local ceremonies during the Buddhist Lent and has now become widespread in commercial nurseries. Although then known only from natural populations in Thailand, the authors predicted that *Smithatris* might also occur in adjacent Myanmar. Here we describe a second species of this genus from the western slopes of the Shan Hills in Myanmar.

Smithatris myanmarensis W. J. Kress, sp. nov.

TYPE: Myanmar, Mandalay Division: Thabeikyin Township, Shwe-U-Daung National Park, elev. 500 m, 22°59'37"N, 96°08'32"E, 11 June 2001, W. J. Kress, Thet Htun, M. Bordelon, K. Williams & T. Rehse 01-6890 (holotype, US; isotypes, AAU, E, MO, RAF). Figure 1.

Smithatre supraneana foliis petiolatis, bracteis inflo-

rescentiae congestis, tubis corollarum longis post anthesin spiraliter crispatis proxima, sed statura minore, laminis foliorum ellipticis petiolis longis munitis, bracteis inflorescentiae dimorphis, lobis corollae amplitudine formaque inter se similibus, labello minime lobato, staminodiis lateralibus saccum sub anthere formantibus differt.

Medium-sized rhizomatous herb, roots without spherical tubers. Stem up to 100 cm in height. Leaves 3 or 4 per shoot; sheaths dark green, ligule minute and papery; petiole green, punctate, varying in length from 5 cm in basal leaves to 20 cm in upper leaves, ca. 7 mm diam.; lamina elliptic, glabrous, punctate below, deep green, median nerve deep green, slightly sunk on the upper surface, more prominent below, apex acute, base attenuate, up to 45 × 14 cm; lower leaves reduced in size. Inflorescence terminal on leafy shoot; peduncle green, up to ca. 35 cm in height, terete, 6–8 mm diam.; inflorescence bracts numerous, 20 to 25 per inflorescence, congested, overlapping, spirally arranged, dimorphic, lower bracts bright green, each bract subtending 1 or 2 flowers, ca. 3.5 cm long, 2.5 cm wide, apex curved outward and joined at the base forming an open pouch, acute distally, upper sterile bracts white, sometimes pink, 5–6.5 × 1.5–2.5 cm, suberect, only slightly joined at base, acuminate distally. Bracteoles small, 5–6 mm in length, white, glabrous. Flowers with calyx tubular, white, glabrous, 6–7 mm in length, 3-dentate; corolla tube white, hidden by bracts, sparsely puberulous, narrow, 1.5 mm diam., ca. 2.2 cm long slightly widening below the lobes, lobes yellow, ca. 5 × 2.5 mm, ovate, all lobes similar in shape and size; after anthesis the corolla tube curling in a spiral fashion retracting the flower into the bract before deteriorating; lateral staminodes yellow, sparsely puberulous, slightly shorter than the corolla lobes, acute, adnate to the labellum forming a loose pouch below the anther; labellum yellow, sparsely puberulous, shallowly lobed with margins



Figure 1. *Smithatris myanmarensis* W. J. Kress. —A. Habit with terminal, pedunculate inflorescence. —B. Inflorescence with bracts cut away showing orientation of flowers and bracteoles. —C. Bracteole. —D. Calyx tube. —E. Apex of flower showing relationship of corolla lobes, staminodes, anther, and stigma, lateral view. —F. Apex of flower showing relationship of corolla lobes, staminodes, anther, and stigma, front view. —G. Longitudinal section of entire flower. —H. Longitudinal section of base of perianth and ovary showing two epigynous nectary glands. —I. Cross section of corolla tube showing groove with inserted style. —J. Cross section of ovary. —K. Post-anthesis corolla tube becoming spirally curled and retracting flower into the bract. Drawn from W. J. Kress 00-6749 (US).

slightly involute at anthesis; stamen yellow, ca. 3 mm in length, anther not versatile, pollen sacs without prolongations at base, connective extending beyond the pollen sacs and stigma to form a rounded crest; stigma white, funnel-shaped; epigynous nectary glands 2 at base of corolla tube, ca. 2.5 mm in length with acuminate apex; ovary cream, ca. 1.5 mm long; pedicel obscure. Fruit and seeds unknown.

Distribution and habitat. This species has only been recorded from a few localities in Myanmar in Mandalay Division on the western slopes of the Shan Hills. *Smithatris myanmarensis* is found in the understory of wet evergreen and bamboo forests, often associated with limestone formations.

This second species of *Smithatris* is similar to *S. supraneeana* in the petiolate leaves, long pedunculate inflorescences with congested bracts, and long corolla tubes that curl in a spiral fashion retracting the flower into the bract after anthesis. However, *S. myanmarensis* differs from the earlier described species in its overall smaller stature (ca. 1 m), elliptic (vs. lanceolate) leaf lamina with longer petioles (up to 20 cm vs. 4 cm), shorter inflorescence peduncles (less than 35 cm vs. 100 cm), and dimorphic inflorescence bracts. In this species the basal bracts are green and subtend one or two flowers while the apical bracts are conspicuously colored (white or pink) and contain no flowers. In *S. supraneeana* all bracts are brightly colored and fertile. The flowers of the two species also differ considerably. In *S. myanmarensis* the three corolla lobes are similar in size and shape, whereas the dorsal lobe is hooded and larger than the lateral lobes in *S. supraneeana*. The labellum and the lateral staminodes in *S. myanmarensis* form a loose pouch below the anther, whereas in *S. supraneeana* the lateral staminodes with the dorsal corolla lobe form a hood above the anther. One of the most conspicuous differences is the deeply divided labellum in *S. supraneeana* as contrasted to the shallowly lobed labellum in the new taxon. Together the above features clearly distinguish *S. myanmarensis* from *S. supraneeana*.

Morphologically this new species shares more characters with *Smithatris supraneeana* than with any other taxon in the Zingiberaceae. However, the differences between these two species as discussed above suggest some caution as to its generic placement. Furthermore, recent investigations on the phylogenetic relationships among genera of the family utilizing DNA sequence data (Kress et al., 2002) indicate that generic boundaries are not well supported in the clade containing *Smithatris*, *Cur-*

cuma, *Stahlianthus*, and *Hitchenia*. For these reasons, we tentatively place the new species in *Smithatris*, but caution that future studies using molecular and morphological characters may establish new generic alignments.

The earlier described taxon, *Smithatris supraneeana*, is well known by local inhabitants in Thailand. This species is sold as a cut flower in markets near the renowned temple of "Phra Putthabat" (the "Footprint of Buddha") where it is used in ceremonies during the Buddhist Lent (Kress & Larsen, 2001). Although we have not seen *S. myanmarensis* sold in markets in Myanmar, we have observed its use as an offering in household Buddhist shrines. This species has great potential for local and regional horticultural use as an ornamental similar to "Globba magnifica K. J. Williams & M. Newman," ined. ("Padein-ngo"), which is sold in markets and distributed throughout Myanmar for the same purpose.

Paratypes. MYANMAR. **Mandalay Division:** Dhazi Township, Otwin Village, elev. 300 m, 20°49'05"N, 96°23'02"E, 12 July 1998, W. J. Kress 98-6177 (US); Pyin-Oo-Lwin Township, Peik Chin Myang Caves, elev. 750 m, 22°06'04"N, 96°37'05"E, 01 July 1999, W. J. Kress 99-6488 (DUKE, RAF, US); Pyin-Oo-Lwin Township, Dat Taw Gyaik Water Fall, elev. 800 m, 21°58'43"N, 96°33'10"E, 03 July 1999, W. J. Kress 99-6507 (DUKE, RAF, US); Thabeikyin Township, Shwe-U-Daung National Park, elev. 800 m, 22°55'24"N, 96°09'50"E, 12 June 2001, W. J. Kress 01-6908 (K, MO, RAF, US). U.S.A. **Maryland:** Suitland, NMNH Department of Botany Research Greenhouses, 18 Aug. 2000, W. J. Kress 00-6749 (US). Plants are also in cultivation in the Department of Botany Research Greenhouses at the National Museum of Natural History (US) and at the Queen Sirikit Botanical Garden in Chiang Mai, Thailand.

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